

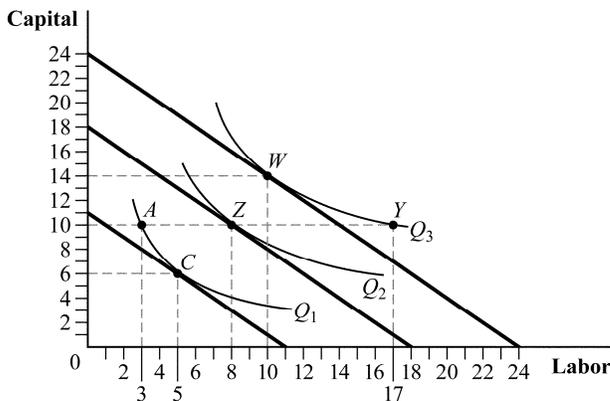
Quiz #4 -- March 12, 2020

Use the answer sheet to answer the questions. Choose the best answer for each question. You may keep the exam booklet.

1. A firm is producing 4 units of output at an average total cost of \$40. When the firm produces 5 units of output, average total cost rises to \$50. What is the marginal cost of the fifth unit of output?
 A) \$120 B) \$10 C) \$30 D) \$90
2. A firm is producing 50 units of output at a total cost of \$1,000, with a per-unit variable cost of \$8. What is the firm's average fixed cost?
 A) \$12 B) \$4 C) \$28 D) \$20

Use the following to answer question 3.

Figure 7.10



3. (Figure 7.10) Suppose the firm is currently producing at point Z and wants to reduce its output to Q_1 . Which of the following statements is TRUE?
 A) In the long run, the firm will move to point A , where total costs of production are lower than at point C .
 B) The firm will move along its long-run expansion path from point Z to point A .
 C) In the short run, the firm will move to point A , where total costs of production are higher than at point C .
 D) In the short run, the firm will move to point A , where total costs of production are lower than at point C .

4. An entrepreneur gathers the following information to make a decision on whether to stay open for business or to shut down permanently:

Future operating revenues = \$18 million

Future operating costs = \$14 million

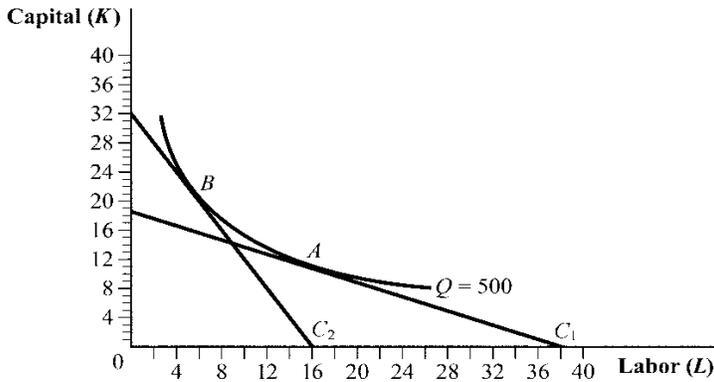
Sunk costs = \$8 million

What should the entrepreneur do?

- A) The entrepreneur should continue to operate the business to help pay off the sunk costs.
 - B) The entrepreneur should shutdown the business, because the sunk costs are greater than zero.
 - C) The entrepreneur should shutdown the business, because the operating revenues are insufficient to cover the operating costs and sunk costs.
 - D) The entrepreneur should continue to operate the business, because the operating revenues exceed the operating costs.
5. A fixed cost:
- A) captures the wear and tear of using capital in production.
 - B) does not change with the level of the firm's output.
 - C) decreases as the firm increases output.
 - D) is associated with the firm's variable inputs.

Use the following to answer question 6.

Figure 6.10



6. (Figure 6.10) Which of the following statements is (are) TRUE?

- I. If labor is cheaper than capital, the firm will produce at point *B*.
- II. If capital is more expensive than labor, the firm will produce at point *A*.
- III. At point *A*, the $MRTS_{LK} = W/R$.

- A) III B) II and III C) I and II D) I and III

7. The production function given by $Q = 10(0.7K^2 + 0.3L^2)^{0.5}$ has _____ returns to scale.
 A) decreasing B) instant C) constant D) increasing

8. Suppose a firm's total cost and marginal cost are given by $TC = 192 + 10Q + 3Q^2$ and $MC = 10 + 6Q$. What is the output level that minimizes average total cost?
 A) 8 B) 1.5 C) 4 D) 21

9. Chad runs a coffee shop that has annual revenues of \$300,000, supply costs of \$60,000, and employee salaries of \$60,000. He has the option of renting out the coffee shop for \$80,000 per year, and he has three outside offers from competitors to work as a senior barista at Starbucks (for an annual salary of \$30,000), at Simon's coffee house (for an annual salary of \$40,000), and at Peet's coffee shop (for an annual salary of \$60,000). He can only hold one job at a time. What should Chad do?
- A) He should rent out his coffee shop and take the job at Peet's.
 - B) He should rent out his coffee shop and take the job at Simon's.
 - C) He should rent out his coffee shop and take the job at Starbucks.
 - D) He should continue to run his coffee shop.
10. Suppose a firm is currently minimizing costs in the long run with marginal product of labor and marginal product of capital given by K and L , respectively. If the price of capital falls by 50%, the capital-to-labor ratio will:
- A) double.
 - B) increase by 50%.
 - C) increase fivefold.
 - D) decrease by 50%.

Answer Key - S20-4

1. D
2. A
3. C
4. D
5. B
6. B
7. C
8. A
9. D
10. A